

REMARKS

This is intended as a full and complete response to the Office Action dated August 27, 2004, having a shortened statutory period for response set to expire on November 27, 2004. Please reconsider the claims pending in the application for reasons discussed below.

Applicant includes herewith a Supplemental Information Disclosure Statement and accompanying Form 1449 including references cited therein. Applicant requests consideration of the references cited in the Form 1449 prior to any further office action on the merits of the application.

Claims 1-31 remain pending in the application and are shown above. Claims 1-31 stand rejected. Reconsideration of the rejected claims is requested for reasons presented below.

Claims 1-31 stand rejected under 35 USC § 102(e) as anticipated by *Smith et al.* (U.S. Patent Application Number 2004/0086623). Applicant respectfully traverses this rejection because *Smith et al.* is actually Applicant's current application erroneously published as *Smith et al.*, with only the title of *Smith et al.* being different than Applicant's application. Applicant therefore respectfully requests removal of the § 102(e) rejection to claims 1-31.

Claims 1-5, 7-10, 14-18, 21-23, 26, 28-29, and 31 stand rejected under 35 U.S.C. § 103(a) as unpatentable over *Lee* (U.S. Patent Number 5,024,099) in view of *Segeral et al.* (U.S. Patent Number 5,591,922). The Examiner states that *Lee* teaches an apparatus and method for determining the flow rate within a pipe (designated by number 11), the pipe having a deformed central portion which has a larger inner than diameter than the nominal inner diameter of the pipe. The Examiner then acknowledges that *Lee* fails to disclose a differential pressure measurement for determining the flow rate of the fluid and further fails to disclose two locations for measuring the pressures. To teach these concepts, the Examiner utilizes *Segeral et al.*, stating that *Segeral et al.* teaches a differential pressure type device for determining the flow rate of the fluid and locations for measuring the pressures, the locations chosen based on the points where the pressure differences are detected. The Examiner then

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states that it would have been obvious to a person having ordinary skill in the art to use a differential pressure transducer to determine the pressure difference across the inverted venturi because such an arrangement would provide the same pressure difference across the venturi to relate the pressure difference to the flow rate.

Applicant respectfully traverses the rejection to claims 1-5, 7-10, 14-18, 21-23, 26, 28-29, and 31 because there is no suggestion or motivation in the references themselves to modify either reference or to combine reference teachings to obtain the apparatuses and methods recited in the claims. *Lee* teaches a pressure transducer 10 utilizing a conduit 11 having circular portions 12 and 14, transition portions 16, and a non-circular portion 18 disposed between the transition portions 16. *See Lee* at col. 4 Ins. 22-27. Upon fluid flow through the non-circular portion 18, the non-circular portion 18 deforms elastically from the non-circular configuration to a circular configuration in response to fluid pressure. *See id.* at col. 4 Ins. 40-44. This deformation of the pipe is a central aspect of the invention of *Lee*. *See id.* at col. 5 Ins. 21-25. In *Lee*, the radial displacement of the pipe or the stress and strain of the pipe wall is measured when the pipe changes from the non-circular configuration to the circular configuration to provide an indication of the applied fluid pressure on the pipe. *See id.* at col. 5 Ins. 25-50. Flexure plates of *Lee* attach electrodes 24' to the non-circular portion 18 at the point of maximum radial displacement of the non-circular portion 18. *See id.* at col. 7 Ins. 5-9. The electrodes are mounted at the same location on the pipe on opposite sides of the non-circular portion and produce an electrical signal proportional to the radial displacement or strain of the pipe when the pipe morphs from its non-circular to its circular configuration. *See id.* at Abstract. Therefore, in *Lee*, the change in diameter of the *same* location on a pipe when fluid flows through the pipe is measured by the transducer to determine the pressure of the fluid flowing through the pipe.

Segeral et al. discloses using an ordinary venturi meter within a pipe to introduce a constriction in the nominal inner diameter of the pipe. The constriction in the inner diameter of the pipe is used to change the speed of the fluid and measure the difference in fluid pressure, i.e., cause an increase in pressure relative to the pressure in the nominal diameter region, between a constricted inner diameter location on the pipe and

another (nominal) location on the pipe, the fluid flowing through the pipe having one speed in the constricted location and another speed in the other location.

Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness because no suggestion or motivation to combine the references has been provided. The mere fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. See *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990). Although a prior art device may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the references to do so. See *id.* at 682. *Lee* does not provide suggestion or motivation for measuring the pressure of the fluid at two locations along the pipe. The purpose of *Lee* is merely to provide a fluid pressure measurement at one location on a pipe. There would be no reason to modify *Lee* to measure the difference in pressure at two locations on the pipe or to relate the pressure differential between the two locations to flow rate through the pipe because measuring the pressure difference at only one location is sufficient to obtain fluid pressure, which was the object of *Lee*, and because the reason for providing the non-circular portion of the pipe with the larger diameter than the remaining portions of the pipe in *Lee* was to provide an elastic pipe portion to allow measuring the pressure of the fluid flowing through the pipe, and not to provide a difference in fluid pressure between two locations on the pipe.

Furthermore, *Segeral et al.* does not provide suggestion or motivation for at least a portion of the pipe having a larger inner diameter than a nominal inner diameter of the pipe or for measuring a differential pressure between at least two locations along the pipe, at least one location positioned in the portion having an inner diameter greater than the nominal inner diameter of the pipe. *Segeral et al.* provides no suggestion or motivation for increasing the inner diameter of the pipe at any location, and further provides no suggestion or motivation for providing an inverse venturi meter. In contrast, *Segeral et al.* repeatedly discusses providing a constriction in the inner diameter of the pipe, and does not mention any reason for altering this design. See *Segeral et al.* at col. 3 lns. 57-66.

Therefore, because neither *Lee* nor *Segeral et al.* suggests the desirability of the combination of these references, Applicant respectfully submits that claims 1-5, 7-10, 14-18, 21-23, 26, 28-29, and 31 are not rendered obvious due to these references. Applicant therefore requests removal of the rejection to and allowance of these claims.

Claims 6, 11-13, 19, 20, 24-25, 27, and 30 stand rejected under 35 U.S.C. § 103(a) as unpatentable over *Lee* in view of *Pruett et al.* (U.S. Patent Number 6,009,216). The Examiner states that *Lee* teaches all of the limitations of the claims except for an optical pressure sensing device. The Examiner then states that *Pruett et al.* teaches an optical device for measuring differential pressure within a pipe. Finally, the Examiner states that it would have been obvious to a person having ordinary skill in the art to use a known pressure sensing device such as an optical device since such devices are known alternatives for measuring the pressures in the pipe.

Applicant respectfully traverses the rejection to claims 6, 11-13, 19, 20, 24-25, 27, and 30 because *Lee* or *Pruett et al.*, alone or in combination with one another, fails to teach, show, or suggest the apparatus or methods recited in these claims. As described above and acknowledged by the Examiner in relation to the previously-addressed claims, *Lee* does not disclose a differential pressure measurement for determining the flow rate of the fluid or two locations for measuring the pressures. Additionally, *Pruett et al.* does not disclose a differential pressure measurement for determining the flow rate of the fluid or two locations for measuring the pressures. Accordingly, because *Lee* or *Pruett et al.*, alone or in combination, fails to teach, show, or suggest all of the claim elements, Applicant respectfully requests removal of the rejection to claims 6, 11-13, 19, 20, 24-25, 27, and 30 and allowance of these claims.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed. Having addressed all issues set

out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully requests allowance of the claims.

Respectfully submitted,



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